

c) heating and/or cooling the reaction mixture in said reaction vessel under said centrifugal force, whereby the gravitation field acting upon more dense subsets of the reaction mixture leads to a thoroughly mixed homogeneous reaction mixture and a homogeneous temperature distribution in the bulk of the reaction mixture.

--37. (new) The method according to claim 36, wherein the centrifugal force in step b) exceeds $500 \times g$.

--38. (new) The method according to claim 37, wherein the centrifugal force is in the range of 500 to $20,000 \times g$.

--39. (new) The method according to claim 37, wherein the centrifugal force is in the range of $1,500g$ to $20,000 \times g$.

--40. (new) The method according to claim 37, wherein the centrifugal force is in the range of $5,000$ to $15,000 \times g$.

--41. (new) The method according to claim 36, wherein the heating of the reaction vessel is performed using a radiation source emitting radiation within a wavelength generating heat in the reaction mixture contained in said reaction vessel.

--42. (new) The method according to claim 36, wherein the cooling of the reaction vessel is performed by rotating the reaction vessel in an environment containing one of ambient air, refrigerated air, a refrigerated gas other than air.

--43. (new) The method according to claim 36, wherein the temperature measurement is performed using an IR-sensor monitoring the temperature of the contents in the rotating vessels.

--44. (new) The method according to claim 36, wherein the temperation and homogenization involves repeated temperation in the form of cyclic temperature changes.

--45. (new) The method according to claim 36, wherein step c) is performed by simultaneous heating and cooling.

--46. (new) The method according to any one of claims 36-45, wherein the reaction is a PCR reaction.

--47. (new) The method according to claim 36, wherein said reaction mixture is heated by air, wherein said air is heated at a temperature of 200°C to 800°C.

--48. (new) The method according to claim 36, wherein said reaction mixture is heated by air, said air at a temperature of 600°C.

--49. (new) The method according to claim 46, wherein said PCR reaction is completed in 20 minutes or less.

--50. (new) A device for performing chemical or biochemical reactions involving temperation and homogenization, comprising:

a) means for holding a reaction vessel containing a reaction mixture to be homogeneously incubated,

b) means for subjecting the reaction vessel and its content to a centrifugal force, and

c) means for heating and cooling the temperature of the contents of the reaction vessel to temperatures appropriate for desired reactions under said centrifugal force, whereby the gravitation field acting upon more dense subsets of the reaction mixture leads to a thoroughly mixed homogeneous reaction mixture and a homogeneous temperature distribution in the bulk of the reaction mixture.

--51. (new) The device according to claim 50, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 500 x g.

--52. (new) The device according to claim 50, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 500 to 20,000 x g.

--53. (new) The device according to claim 51, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 1,500g to 20,000 x g.

--54. (new) The device according to claim 51, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 5,000 to 15,000 x g.

--55. (new) The device according to claim 51, wherein the means for heating the contents of the reaction vessel comprise means emitting radiation within a wavelength generating heat in the reaction mixture contained in said reaction vessel.

--56. (new) The device according to claim 50, wherein the means for cooling the contents of the reaction vessel comprise means for exposing a rotating reaction vessel to an environment containing one of ambient air, refrigerated air, a refrigerated gas other than air.

--57. (new) The device according to claim 50, wherein the means for measuring the temperature of the reaction mixture comprise means for monitoring IR radiation emitted by the reaction mixture.

--58. (new) The device according to claim 50, wherein the means for heating and cooling the temperature is capable of repeated temperation in the form of cyclic temperature changes.

--59. (new) The device according to claim 50, wherein the heating and cooling means is capable of conducting simultaneous heating and cooling.